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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/008,947	01/20/1998	RANDELL L. MILLS	911322US	6830

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FARKAS & MANELLI
2000 M STREET, N.W.
7TH FLOOR
WASHINGTON, DC 200363307

EXAMINER	
KALAFUT, STEPHEN J	
ART UNIT	PAPER NUMBER
1745	

DATE MAILED: 07/07/2003

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)
	09/008,947	MILLS, RANDELL L.
	Examiner	Art Unit
	Stephen J. Kalafut	1745

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *4/17/03* .

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,2,4-6 and 10-59* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,2,4-6 and 10-59* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) *37* .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other:

Claims 1, 2, 4-6 and 10-59, for reasons of record, are rejected under 35 U.S.C. 101 because the disclosed invention is operative and therefore lacks credible utility. See paper no. 17, paragraph 3.

Claims 1, 2, 4-6 and 10-59 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. See paper no 17, paragraph no. 4.

Applicant's arguments filed 4/17/03 have been fully considered but they are not persuasive.

Applicant argues that the assertion in the previous office action that the formation of lower energy hydrogen is not consistent with the formation of a plasma is "demonstrates a lack of understanding of basic scientific principles". When one substance contacts a more energetic substance, energy may be transferred from the more energetic substance to the less energetic substance, but not vice versa. Put another way, when a cool object contacts a warmer object, heat is transferred from the warmer to the cooler. This is a basic law of thermodynamics. If ordinary hydrogen, with its electron inhabiting the state of n=1, were to contact a plasma, in which electrons are energetic enough to have been removed from some of their corresponding nuclei, energy would be transferred from the (more energetic) electrons of the plasma to those of each hydrogen atom. Applicant apparently suggests that the less energetic hydrogen electrons

would lose energy to the (already) more energetic electrons present in the plasma. These electrons, from atoms such as argon and strontium (to use applicant's examples), in order to escape from their nuclei, would be much more energetic than the electrons in ordinary hydrogen, because these nuclei are much larger that those of hydrogen, and therefore exhibit a much stronger binding coulomb force to be overcome.

Applicant argues that quantum electrodynamics is purely mathematical and has no basis in physical reality. According to the internet article by Gottfried, this theory, first proposed by Dirac, predicted the existence of antimatter, such as the positron, which has the same mass as the electron but with the opposite charge. This prediction arose from the fact that Dirac's equation, when applied to the electron, had a flaw because it had solutions "with negative energy that made no apparent sense (page 1, paragraph 7). This particle, called a "positron", was later discovered experimentally (page 2, paragraph 1). Dirac's prediction was motivated purely by theory, yet ultimately became successful, even though Bohr and other figures originally dismissed it (page 2, paragraph 2). Also, as Gottfried explains, "[q]uantum electrodynamics has survived more searching experimental scrutiny than any other physical theory. It is valid down to distances more than six orders of magnitude shorter than those that had been explored at the time Dirac invented it" (page 2, paragraph 3). While applicant faults the Office position that quantum mechanics "is the most successful theory in history" as "incredulous" (applicant's most recent response, page 64, lines 10-12), Gottfried implies that quantum electrodynamics has been quite successful when experimentally investigated, and would appear to corroborate the statement by Kleppner *et al.*, cited in the attachment to paper no. 25, that quantum theory "is the most precisely tested and most successful theory in the history of science" (page 893). According

to Tegmark *et al.*, quantum mechanics is not merely a theory, but is the basis for various inventions such as semiconductors, lasers and magnetic resonance imaging (page 69). Quantum mechanics also predicts that under certain conditions, non-local (faster than light) influences are possible, and that these have been verified by experiment, according to the internet article by Dennis, page 1. These are in sharp contrast to applicant's statement that if "adherence to first principle laws are considered, it [quantum mechanics] has never solved a single problem correctly" (page 55 of applicant's most recent response).

Applicant argues that a plasma formed from silicon and hydrogen shows emission lines with energies of q x 13.6 eV, where q = 1, 2, 3, 4, 6, 7, 8, 9 or 11. This is not persuasive because these values of q are inconsistent with those predicted by applicant's theory. According to applicant, on page 4 of the present application, the binding energy levels for a hydrogen atom are given by the equation Binding Energy = -13.6 eV / $(1/p)^2$, where p is integer. Thus, n=1/p. When p=1, the hydrogen is in its ground state of n=1. Calculating the energy levels for p equaling 2, 3, and 4 would yield the values -13.6 eV / $(1/2)^2$, -13.6 eV / $(1/3)^2$, and -13.6 eV / $(1/4)^2$, respectively. These may be simplified to -13.6 eV / (1/4), -13.6 eV / (1/9), and -13.6 eV / (1/16), and then -13.6 (4) eV, -13.6 (9) eV, and -13.6 eV (16). When calculated fully, these would be -54.4 eV, -122.4 eV, and -217.6 eV. The energy level for p=5 would be -340.0 eV. Applicant expresses these values as multiples of q x 13.6 eV. The energy levels for p=1 through p=5 would thus respectively correspond to values for q of -1, -4, -9, -16 and -25.
The energy transitions between p to the next higher p, starting with p going from 1 to 2, would correspond to q values of 3, 5, 7 and 9, each being an odd number. The lowest even value of q would be 8, where p goes from 1 to 3. Other possible even values of q would include 12 (p goes

from 2 to 4) and 16 (p goes from 3 to 5). Thus, the q values of 2, 4 and 6 are precluded by applicant's theory (unless an electron may go from being unbound to a p value of 2), while included in applicant's observations. Conversely, applicants theory predicts the q value of 5, which is absent from the observations. Applicant makes numerous references to the value of q=2, in other words, 27.2 eV. However, none of the energy transitions predicted by his own theory involve this particular value. It is noted that applicant has asserted that the transition from the ground state to lower energy states is a *non-radiative* energy transfer, but then argues that these transitions are evidenced by the spectra of radiation. It is also noted that as p continues to increase, the radius of the electron orbital decreases by smaller amounts, but the energy released by each successive transition is greater, which would lead toward infinitely larger energy being produced from infinitely smaller spaces, ending only at the size of the hydrogen nucleus.

Applicant argues that the existence of hydrinos within plasmas is shown by Balmer line broadening. This is not persuasive because Balmer line broadening may result from a number of phenomena other than any transitions of hydrogen to a below ground energy state. According to the internet article "Stellar Spectra and the Secrets of Starlight", Balmer line broadening may occur due to turbulence or variations of pressure (pages 6 and 7). According to the internet article by Bårmann *et al.*, Balmer line broadening may occur due to higher degrees of ionization (page 3). Since plasma is an ionized state of matter, Balmer line broadening would thus be expected to occur therein. It is also noted that for a hydrogen atom to ionize and become part of a plasma, it must have its electron removed, which would be the exact opposite of hydrino formation, since this removal would require an increase in the energy of the electron. This

would also be true of naturally occurring plasmas such as the sun and other stars, which are powered by the energy arising from nuclear fusion.

Further evidence against applicant's theory is shown in the internet articles by Krieg and Zimmerman. Krieg shows through ordinary differential calculus that the ground state is a minimum, which would exhibit the Bohr radius (page 3), where de/dr=0 (e=energy, r=radius). By contrast, as noted above, the energy states alleged by applicant have no minimum, but would rise to infinity as r becomes infinitely smaller, ending only when r becomes equal to or smaller than the radius of the nuclear proton of hydrogen. Zimmerman (pages 3 and 4) discusses a problem with applicant's model of an electron moving through space as a spinning disk, with the spin axis aligned with the direction of the electron's motion. This model is shown in applicant's book *The Grand Unified Theory of Classical Quantum Mechanics*, on page 166. In a beam of electrons behaving according to applicant's theory, all moving in the same direction, all of the electrons would be polarized in this same direction. However, the electrons in observed beams are most of the time randomly polarized (Zimmerman, page 3). Thus, while randomly polarized electron beams are the normal reality, applicant's theory implies that they should not exist.

Since new evidence has been presented by the examiner, this action will be non-final.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Stephen J. Kalafut whose telephone number is (703) 308-0433. The examiner can normally be reached on M-F 8:00-4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Patrick J. Ryan can be reached on (703) 308-2383. The fax phone numbers for the

organization where this application or proceeding is assigned are (703) 872-9310 for regular communications and (703) 872-9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0661.

sjk
June 29, 2003

STEPHEN KALAFUT
PRIMARY EXAMINER
GROUP 1700